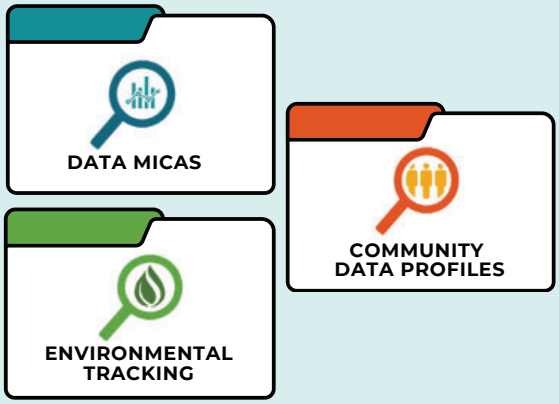
MOPHIMS NEWSLETTER

SEPTEMBER EDITION

HELLO!

Bringing you the 32nd issue of the MOPHIMS Newsletter. Check out the featured article, new MOPHIMS data updates and more!

NEW SUBMIT YOUR FEEDBACK



Featured Article

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Check out the featured article on the rise of septicemia deaths in Missouri and learn how to create charts and graphs to compare years and analyze trends.

Read More »

EPHT

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The Environmental Public Heath Tracking Program put together some summer tips and resources to help keep you healthy and safe in the summer months.

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SEPTICEMIA

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In the United States, approximately 40,000 people die from septicemia each year.

Septicemia is an infection that enters the bloodstream and eventually spreads throughout the body if not treated. Septicemia can lead to the development of sepsis, an extreme immune response by the body towards an infection.[1] Sepsis is a life-threatening medical emergency that requires immediate medical care to prevent damage to tissue and organs. About half of all sepsis cases are fatal.[2] Timely treatment after the onset of symptoms can reduce the risk of septicemia developing into sepsis.

Symptoms of septicemia include:

- Sepsis rash on skin
- Difficulty breathing
- Fast heart rate
- Low blood pressure
- Fever
- Nausea or vomiting
- Shaking or chills
- Warm or clammy/sweaty skin
- Confusion or disorientation
- Extreme pain or discomfort

Types of Infection and Treatment

Septicemia can be caused by a bacterial, viral or fungal infection, but bacteria are the most common cause. Some bacteria like Staphylococcus aureus, Escherichia coli and certain types of streptococcus bacteria are more likely to lead to sepsis.[2] Bacteria can enter the bloodstream through different pathways including the following:

- An abscessed tooth
- Unsterilized medical equipment
- Kidney infection
- Pneumonia
- Wounds on the skin
- Urinary tract infection

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Since septicemia is a life-threatening condition, treatment is often administered in a hospital setting. Treatment can include using different types of medications (i.e., antibiotics), which will depend on the underlying cause of infection. Additionally, oxygen and intravenous (IV) fluids are used to support blood flow and prevent tissue and organ damage.[2] Infected areas of the body may also need to be drained or require surgery to remove damaged tissue.

Prior Health Conditions and Risks

Certain health conditions can increase the risk of developing septicemia. Those with a weakened immune system, including those who had a recent surgery or hospital stay, are most at risk. Those who have had prior septicemia infections, another type of infection or a chronic medical condition (i.e., diabetes or cancer) are at a higher risk for developing septicemia.[2] Those with severe injuries, including those with extensive burns or open wounds, are also at higher risk.

Septicemia can affect anyone, but it is more common for certain demographics. In 2021, it was among the top 10 leading causes of death in the United States among postneonatal infants (i.e., infants 28 days through 11 months) and adults age 25 to 64.[3] There was a higher rate of septicemia-related deaths among men aged 65 and over compared to women.[4] Rates were also higher among Black or African American individuals aged 65 and over compared to white individuals.

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Septicemia Data on MOPHIMS

With the following step-by-step tutorial, we will use MOPHIMS to examine the impact of septicemia in Missouri and what trends are seen in the state. First, let's look at the Death MICA on the MOPHIMS website.

Make the following selections:

Choose Your Data

Year: Single Year, Select 2012-2021

Age: Basic, Select All

Cause: De-select Select All Major Items and select Septicemia#

Build Your Results

Create a Chart

Type of Chart: Trend Line

Variable Axis: Year

Value Axis: Cause

Statistics: Counts

Create Chart

Chart 1

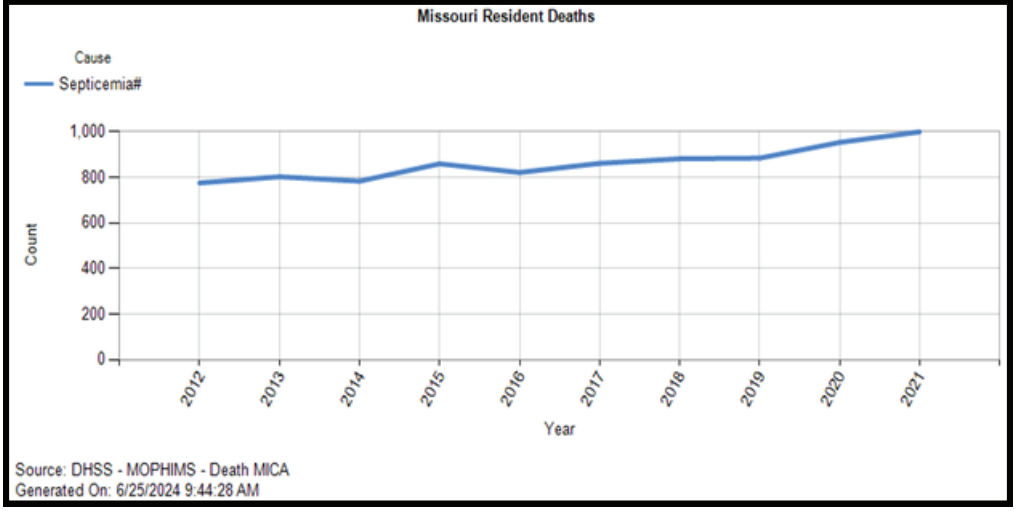

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Chart 1 shows the trend line of septicemia-related deaths in Missouri by year. Based on the annual counts, there has been a steady increase in septicemia-related deaths with almost a 30% increase since 2012. We will need to look at the rates and confidence intervals next to determine whether this increase is statistically significant.

To better visualize, select the Build a Table tab and make the following changes:

Build Your Results

Build a Table

Main Row: Year

Main Column: Cause

Statistics: Counts and Rates

Confidence Intervals: 95% Confidence Intervals

Submit Query

Table 1

Title:	Missouri Resident Deaths			
Data selected in addition to rows and columns below:	None			
Cause:	Septicemia#	Septicemia#	Septicemia#	Septicemia#
Statistics:	Count	Rate	Lower 95% Conf Limit	Upper 95% Conf Limit
Year				
2012	775	11.01	10.23	11.78
2013	802	11.13	10.36	11.90
2014	783	10.67	9.92	11.42
2015	859	11.63	10.85	12.41
2016	821	10.94	10.19	11.69
2017	861	11.32	10.56	12.08
2018	881	11.19	10.45	11.92
2019	884	11.15	10.41	11.88
2020	953	11.94	11.18	12.70
2021	999	12.72	11.93	13.51
Total for selection	8,618	11.38	11.14	11.62

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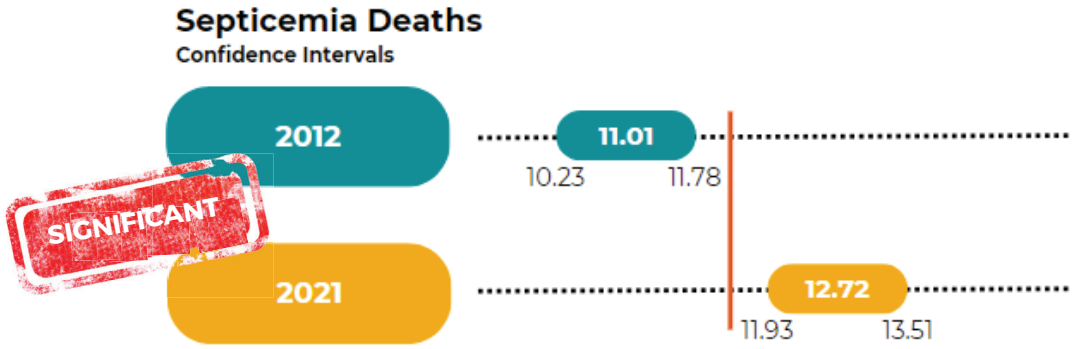
Table 1 shows the counts, rates per 100,000 residents and 95% confidence intervals of septicemia-related deaths by year. The rate of septicemia-related deaths in Missouri increased 15.5% between 2012-2021. To determine if the rate increase was significant, we can use a statistical test comparing the lower and upper confidence limits for 2012 and 2021. Confidence intervals that **do overlap** are not statistically significant while confidence intervals that **do not overlap** are statistically significant. In this case the confidence intervals for 2012 and 2021 **do not overlap** showing there is a statistically significant increase in septicemia-related deaths in Missouri.



Next, let's look at different demographic data to determine if septicemia-related deaths in Missouri have similar trends to those seen in the rest of the United States.

Make the following selections:

Choose Your Data

Year: Single Year, Select 2012-2021

Age: Basic, Select 25-44, 45-64 and 65 and over

Cause: De-select Select All Major Items and select Septicemia#

Build Your Results

Build a Table

Main Row: Year

Main Column: Race (Table 2)
Sex (Table 3)

Statistics: Counts and Rates

Confidence Intervals: 95% Confidence Intervals

Submit Query

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Table 2

Title:	Missouri Resident Deaths							
Data selected in addition to rows and columns below:	Age: 25 - 44, 45 - 64, 65 and Over; Cause: Septicemia#;							
Race:	White	White	White	White	Black or African-American	Black or African-American	Black or African-American	Black or African-American
Statistics:	Count	Rate	Lower 95% Conf Limit	Upper 95% Conf Limit	Count	Rate	Lower 95% Conf Limit	Upper 95% Conf Limit
Year								
2012	656	18.77	17.33	20.20	96	22.35	18.10	27.29
2013	688	19.60	18.14	21.07	97	22.27	18.06	27.17
2014	670	19.00	17.56	20.44	96	21.73	17.60	26.54
2015	745	21.03	19.52	22.54	92	20.52	16.54	25.17
2016	689	19.37	17.92	20.81	113	24.89	20.51	29.92
2017	722	20.17	18.70	21.65	118	25.61	21.20	30.67
2018	732	20.38	18.90	21.85	136	29.15	24.46	34.48
2019	738	20.47	18.99	21.94	131	27.76	23.21	32.94
2020	822	22.72	21.16	24.27	113	23.90	19.70	28.73
2021	850	23.48	21.90	25.05	127	26.81	22.35	31.90
Total for selection	7,312	20.51	20.04	20.98	1,119	24.57	23.13	26.01

Table 2 shows the counts, rates per 100,000 residents and 95% confidence intervals of septicemia-related deaths for both Black or African American and white individuals in Missouri who are aged 25 and older. Rates for both demographics increased between 2012 and 2021. Among Black or African American individuals in Missouri, the rate of septicemia-related deaths increased 19.9% from 2012 to 2021 while the rate increased 25.1% among white individuals. Like the rates of septicemia-related deaths in the United States, the rates for Black or African American individuals in Missouri were generally higher year to year. Despite having a higher rate, the 2012 and 2021 confidence intervals (outlined in **yellow**) for Black or African American individuals in Missouri **do overlap** meaning the increase is not statistically significant. In contrast, the confidence intervals for septicemia-related deaths among white individuals (outlined in **blue**) **do not overlap** meaning that the increase is statistically significant.

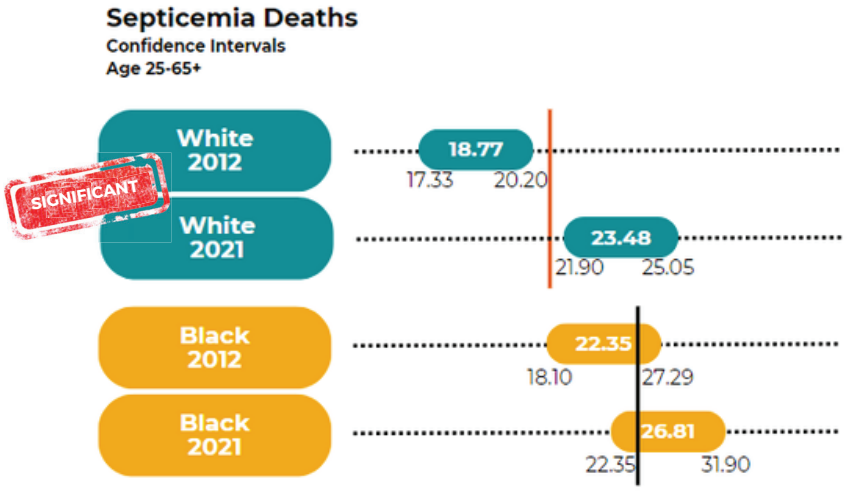

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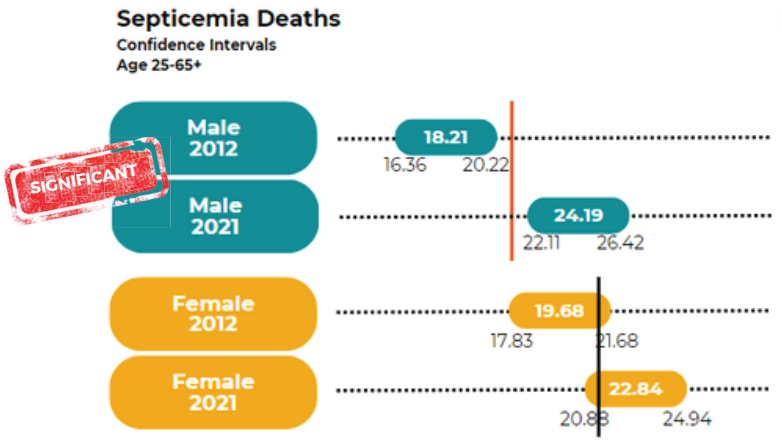
Table 3

Title:	Missouri Resident Deaths							
Data selected in addition to rows and columns below:	Age: 25 - 44, 45 - 64, 65 and Over; Cause: Septicemia#;							
Sex:	Male	Male	Male	Male	Female	Female	Female	Female
Statistics:	Count	Rate	Lower 95% Conf Limit	Upper 95% Conf Limit	Count	Rate	Lower 95% Conf Limit	Upper 95% Conf Limit
Year								
2012	352	18.21	16.36	20.22	412	19.68	17.83	21.68
2013	409	21.02	19.03	23.16	387	18.38	16.59	20.31
2014	375	19.14	17.25	21.18	400	18.89	17.08	20.84
2015	414	20.98	19.01	23.10	428	20.08	18.22	22.08
2016	417	21.00	19.03	23.12	400	18.67	16.88	20.59
2017	411	20.53	18.59	22.61	444	20.57	18.70	22.58
2018	439	21.81	19.82	23.95	438	20.18	18.33	22.16
2019	439	21.69	19.71	23.82	440	20.18	18.34	22.16
2020	472	23.24	21.19	25.43	478	21.82	19.91	23.87
2021	496	24.19	22.11	26.42	497	22.84	20.88	24.94
Total for selection	4,224	21.21	20.57	21.85	4,324	20.14	19.54	20.74

Table 3 shows the counts, rates per 100,000 residents and 95% confidence intervals of septicemia-related deaths for men and women in Missouri who are aged 25 and over. Men in Missouri generally have a higher death rate than women which is comparable to the higher rate of septicemia-related deaths among men in the United States. While the rates are higher for men in Missouri compared to women, there is an increase in the rates for both sexes. Among women in Missouri, the rate of septicemia-related deaths between 2012 and 2021 increased 16.1% while among men the rate increased 32.8%. For women in Missouri, the 2012 and 2021 confidence intervals (outlined in **yellow**) **do overlap** meaning the 16.1% increase is not statistically significant. In comparison, the 2012 and 2021 confidence intervals for men in Missouri (outlined in **blue**) **do not overlap** meaning the 32.8% increase in rates of septicemia-related deaths is statistically significant.



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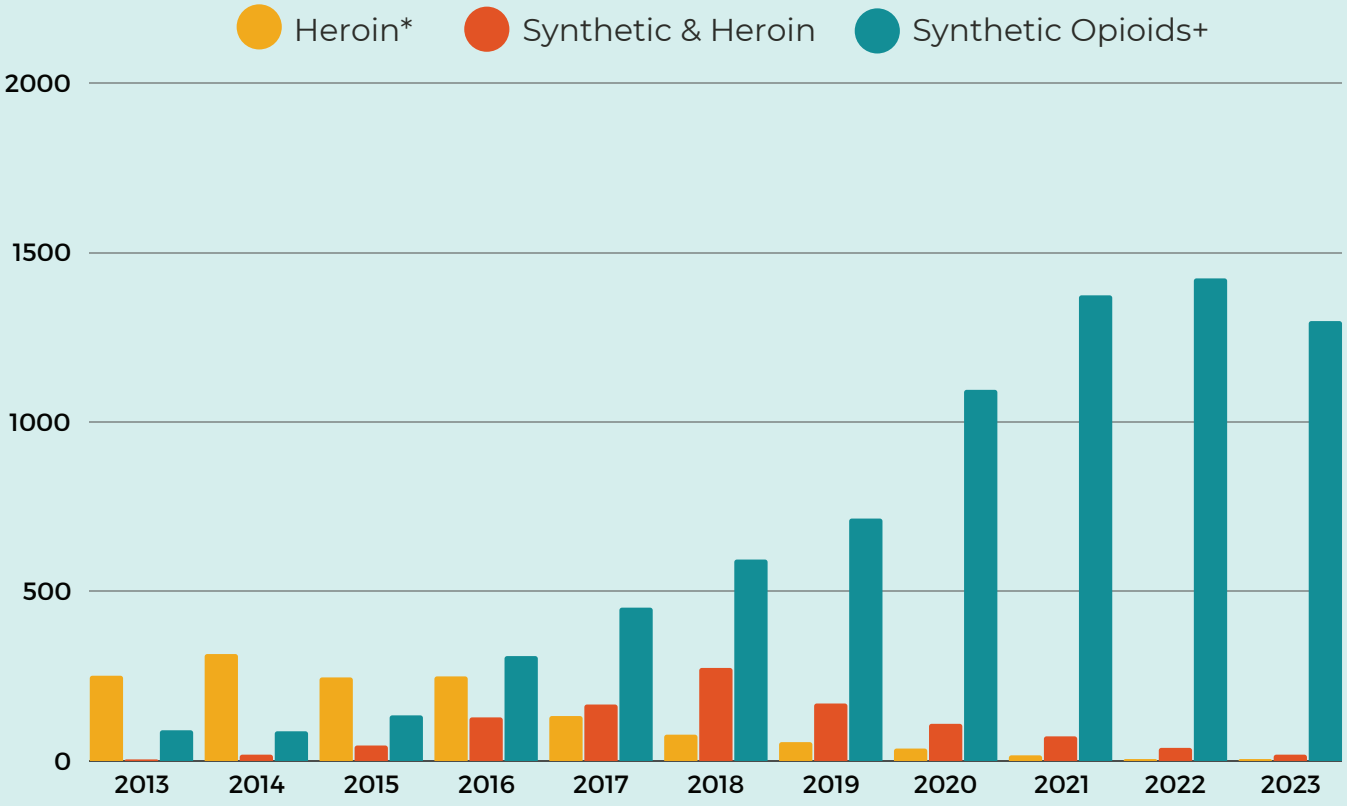
MISSOURI'S DRUG OVERDOSE DASHBOARD

DASHBOARD

Drug overdose deaths continue to be an ongoing epidemic statewide and nationally. Provisional data shows there were 1,948 drug overdose deaths in Missouri in 2023. Over 73% of those deaths were attributed to opioids. Prescription opioids and heroin once drove this epidemic. Now synthetic opioids such as fentanyl have taken over as the primary substance causing death.

Heroin vs Synthetic Opioid Deaths



Click **HERE** to visit the dashboard to learn more about data related to fatal and nonfatal drug overdoses, Neonatal Abstinence Syndrome (NAS), Naloxone usage by Emergency Medical Services (EMS) and access the latest drug overdose fact sheets.

* Excludes heroin deaths with synthetic opioids present.
+Excludes synthetic opioid deaths with heroin present.

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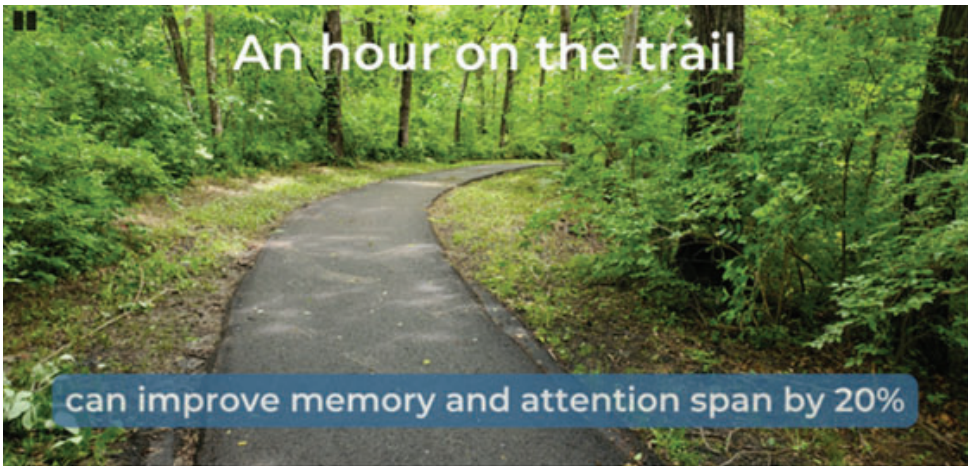
SUMMER TIPS AND RESOURCES

EPHT WEBPAGE

This summer is another hot one, and the Environmental Public Health Tracking (EPHT) Program has your back. Our summer webpage provides tools and resources so users can continue to reap the many physical and mental health benefits of being outside, no matter what the season brings.



As users scroll down the webpage, the first stop contains resources to help them contend with ticks, Missouri's perpetual summer pest. The Missouri Tickborne Disease Story Map describes how to identify tick species, where in the state tickborne disease rates are highest and how to prevent tickborne disease exposure in the first place.

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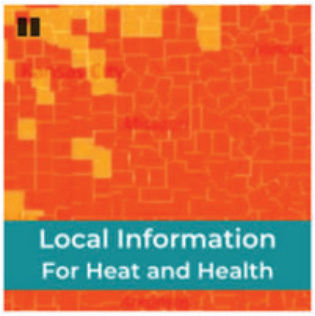
Additional outdoor recreation and safety resources include Missouri's Fish Advisory, where users will find a new mobile-friendly, interactive map of waterbodies with fish consumption advisories.

Moving onward, users find links to information on protecting themselves from excessive heat and sun exposure and related health conditions, such as heat exhaustion, heat stroke and melanoma. Users can confidently hit the trail or ballpark with The Centers for Disease Control and Prevention's new tool, "Heat and Health Tracker." This tool gives users real-time data on temperature conditions and current risks of heat-related illness at the county level.



Near the end of the webpage, users can explore Missouri's food access landscape, summer food and farmer's market programs and resources for getting outside and exploring the fresh picks of the season in their community. Resources include links to educational events, recipe inspiration and information on farm safety.

The Environmental Public Health Tracking Program is happy to answer any questions at EPHTN@health.mo.gov or by calling 573-751-6102.

NEWSLETTER AUTHORS

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Education: *B.A. Business Administration: Marketing, Truman State University*

Favorite part of the job: *I like getting new and different data requests from day to day and working on requests that allow me to learn something new. I also really enjoy getting to travel to different conferences.*

Hobbies: *Playing the piano, solving jigsaw puzzles, staying active and enjoying the outdoors*

Fun fact: *I can speak Spanish.*

MEGAN BARNES
ASSOCIATE RESEARCH/ DATA ANALYST

Education: *B.A. Anthropology, University of Missouri*

Favorite part of the job: *I love getting to connect with the public and see how our work is affecting the lives of Missourians.*

Hobbies: *Reading, embroidery and roller blading*

Fun fact: *Last year I read 26 books, adding up to over 11,000 pages.*

CHELSEA FIFE
SENIOR RESEARCH ANALYST

ERIN HENRY
RESEARCH/DATA ANALYST

Education: *M.S. Climate Science & Solutions, Northern Arizona University, M.A. Anthropology, University of California, San Diego, B.S. Biology, Saint Mary's College*

Favorite part of the job: *I enjoy problem solving and using data to help answer public health questions.*

Hobbies: *Reading, walking and yoga*

Fun fact: *I competed in gymnastics through high school and college.*

KADARENNA MATTHEWS
RESEARCH/DATA ANALYST

Education: *B.S. Elementary Education, Iowa State University*

Favorite part of the job: *I enjoy designing and creating products that help explain public health data.*

Hobbies: *Watching and playing sports, walking and spending time outdoors*

Fun fact: *My sisters and I grew up at the track racing go karts.*

Education: *M.S. in Soils and Biogeochemistry from the University of California, Davis. B.S. in Environmental Studies from the University of Kansas*

Favorite part of the job: *I love transforming numbers on a spreadsheet into understandable and actionable visualizations.*

Hobbies: *Hiking the trails of Mid-Missouri, mushroom hunting, painting and travel*

Fun fact: *I've been to 17 National Parks and plan to visit them all.*

NICOLE NIEHUES
EPIDEMIOLOGIST

AVAILABLE DATA

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DATA MICAS

Maternal, Infant and Child Health MICAs

- Birth 2021
- Fertility and Pregnancy Rate 2021
- Pregnancy 2021
- WIC Child 2021
- WIC Infant 2021
- WIC Prenatal 2021
- WIC Postpartum 2021
- WIC Linked Prenatal-Postpartum 2021

Injury MICA

- Injury 2015

Hospital and Emergency Room Visit MICAs

- Emergency Room 2015
- Inpatient Hospitalizations 2015
- Preventable Hospitalizations 2015
- Procedures 2015

Chronic Disease MICAs

- Cancer Incidence 2020
- Chronic Disease Death 2021
- Chronic Disease Emergency Room 2015
- Chronic Disease Inpatient Hospitalization 2015

Death MICA

- Death 2021

Population MICA

- Population 2021

Available MOPHIMS Data

The graphic to the left shows the years of data available for each MICA.

If you need more current data than what is available, please reach out and we will do our best to complete your request.

Hospital-based datasets are not being updated online yet, but we do have data through 2022 available upon request. The same is true of 2022 BRFSS survey data.

Training

We will begin offering trainings once MOPHIMS is updated with more current data.

In the meantime, if you would like an overview of the MOPHIMS system, Profiles, MICAs and information on how to become a registered user, you can watch the MOPHIMS Demo Webinar on the department website under 'Community Health Assessment Intervention Planning' located **HERE**.

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TELL US WHAT YOU THINK!

Give us feedback and help us improve

START

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1. Cleveland Clinic. Septicemia (Blood Poisoning): Causes, Management (https://my.clevelandclinic.org/health/diseases/21539-septicemia). Accessed June 26, 2024.

2. Johns Hopkins Medicine. Septicemia (https://www.hopkinsmedicine.org/health/conditions-and-diseases/septicemia). Accessed June 26, 2024.

3. Curtin SC, Tejada-Vera B, Bastian BA. Deaths: Leading causes for 2021. National Vital Statistics Reports; vol 73 no 4. Hyattsville, MD: National Center for Health Statistics. (https://dx.doi.org/10.15620/cdc/147882). Accessed June 24th, 2024.

4. National Center for Health Statistics, National Vital Statistics System, Mortality Data, 2021. (https://wonder.cdc.gov/mcd.html). Accessed June 14, 2024.